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=> s feed and high(w)oil(w)corn

15247 FEED

93129 HIGH

39905 OIL

18201 CORN

23 HIGH(W)OIL(W)CORN

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6 FEED AND HIGH(W)OIL(W)CORN

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L1 ANSWER 1 OF 6 FSTA COPYRIGHT 2004 IFIS on STN

AN 2003:S1253 FSTA

TI Nutritive value of **high-oil corn** grown under semi-arid conditions and its impact on broiler performance and carcass composition.

AU Daghir, N. J.; Farran, M. T.; Barbour, G. W.; Beck, M. M.

CS Dep. of Animal Sci., Fac. of Agric. & Food Sci., American Univ. of Beirut, PO Box 11-0236, Beirut 1107-2020, Lebanon. E-mail ndaghir(a)aub.edu.lb

SO Poultry Science, (2003), 82 (2) 267-271, 20 ref.  
ISSN: 0032-5791

DT Journal

LA English

AB The nutritive value of a **high-oil corn** (HOC)

cultivar, grown under semiarid conditions, and the impact of using it as **feed** on performance and carcass characteristics of male broiler chickens raised to market age were evaluated. Conventional corn (CC) and HOC were produced under similar semi-arid conditions. The nitrogen-corrected apparent metabolizable energy of CC, determined on 11-day-old male broilers using a glucose-containing reference diet, was lower than that of HOC (3541 vs. 3669 kcal/kg DM;  $P < 0.05$ ). The true metabolizable energy, nitrogen-corrected true metabolizable energy (TME.sub.n) and true amino acid availability of CC and HOC were determined through individual precision feeding of 8 intact mature roosters per ingredient. The TME.sub.n of HOC was significantly higher than that of CC (4126 vs. 3870 kcal/kg DM;  $P < 0.05$ ) but true availability of amino acids was comparable for both cultivars. By using the crude protein and TME.sub.n values determined, 2 corn soybean meal starter and grower diets, containing no added fat, were prepared, in which HOC replaced CC. Diets were provided ad lib. in 5 replicates of 8 birds to 5-day old male broilers until market age. Broiler performance, carcass yield and carcass composition were comparable between groups fed each corn cultivar. Chickens fed the HOC diet, however, deposited more abdominal fat than those on CC diet (0.695 vs. 0.575%;  $P < 0.05$ ). Results suggest that the extra calories derived from HOC may be diverted primarily toward abdominal fat pad deposition rather than increased growth.

CC S (Meat, Poultry and Game)

CT CARCASSES; CHICKEN MEAT; CHICKENS; FEEDS; CHICKEN CARCASSES; QUALITY

L1 ANSWER 2 OF 6 FSTA COPYRIGHT 2004 IFIS on STN  
 AN 2003:S1134 FSTA  
 TI The influence of diets containing either conventional corn, conventional corn with choice white grease, **high oil corn**, or high oil high oleic corn on belly/bacon quality.  
 AU Rentfrow, G.; Sauber, T. E.; Allee, G. L.; Berg, E. P.  
 CS Correspondence (Reprint) address, E. P. Berg, Dep. of Animal Sci., Univ. of Missouri, Columbia, MO 65211, USA. Tel. +1-573-882-3176. Fax +1-573-884-4606. E-mail [bergep\(a\)missouri.edu](mailto:bergep(a)missouri.edu)  
 SO Meat Science, (2003), 64 (4) 459-466, 16 ref.  
 ISSN: 0309-1740  
 DT Journal  
 LA English  
 AB Effects of feeding various corn genotypes with modified fatty acid profiles on the quality of pork and bacon from 196 crossbred barrows (swine) were evaluated. 4 corn-based rations were used, comprising: 86.25% conventional corn (CC); 79.785% CC + 4.91% choice white grease; 85.745% **high oil corn** (HOC); or 85.27% high oleic/**high oil corn** (HOHOC). Fatty acid **feed** profiles had no significant impact on green weight, pumped weight, smokehouse yield or cooked pressed centre weight, although CC + grease, HOC and HOHOC diets produced softer bellies than CC diets. Cooked bacon slice parameters (cooking loss, lengthwise shrinkage, visual distortion score) were unaffected by feeds, but pork fatty acid profiles were significantly altered. Saturated fatty acid concentration was highest in pork from pigs given CC (40% of total, vs. 36.76-37.69%) and total unsaturated fatty acid levels were maximum in pork from pigs on HOC. PUFA concentration averaged approx. 10.3, 11.2, 14.3 and 9.4% in pork from pigs on CC, CC + grease, HOC and HOHOC, respectively, and MUFA concentration were, correspondingly, approx. 48.4, 49.8, 47.7 and 51.6%.  
 CC S (Meat, Poultry and Game)  
 CT BACON; FATTY ACIDS; FEEDS; PORK; SWINE; QUALITY

L1 ANSWER 3 OF 6 FSTA COPYRIGHT 2004 IFIS on STN  
 AN 2001(07):P1220 FSTA  
 TI Effect of dietary lipid source on conjugated linoleic acid concentrations in milk fat.  
 AU Chouinard, P. Y.; Corneau, L.; Butler, W. R.; Chilliard, Y.; Drackley, J. K.; Bauman, D. E.  
 CS Correspondence (Reprint) address, D. E. Bauman, Dep. of Animal Sci., Cornell Univ., Ithaca, NY 14853, USA. E-mail [deb6\(a\)cornell.edu](mailto:deb6(a)cornell.edu)  
 SO Journal of Dairy Science, (2001), 84 (3) 680-690, 41 ref.  
 ISSN: 0022-0302  
 DT Journal  
 LA English  
 AB Effects of various fat supplements and **feed** processing methods on CLA contents of milk fat were investigated. Supplementation of feeds with calcium salts of fatty acids from rapeseed, soybean and linseed oil increased CLA content of milk fat 3-5-fold over values for cows fed a control diet. Effects on CLA content of heating method of full-fat soybeans fed to cows were also examined. Extrusion, micronization and roasting of soybeans resulted in a 2-3-fold increase in CLA content of milk fat compared with values for cows fed a control diet containing raw ground soybeans. When soybeans were extruded at different temperature (120, 130 and 140°C), all experimental feeds increased CLA contents of milk fat to a similar extent. Average CLA concentration were 19.9 mg/g fatty acids for cows fed extruded soybeans compared with 4.2 mg/g fatty acids for the control diet. Feeding fish oil at 200 or 400 ml daily caused approx. 3-fold increases in CLA in milk fat. Inclusion of a **high oil corn** hybrid in the **feed** also increased CLA content of milk fat, but only slightly when compared with animals fed a

normal hybrid. Tallow plus yellow grease added to feeds also caused only slight increases in milk fat CLA. It is concluded that several dietary methods were identified that could cause marked increases in the CLA content of milk fat.

CC P (Milk and Dairy Products)

CT FATS MILK; FEEDS; LINOLEIC ACID; CONJUGATED LINOLEIC ACID; MILK FATS

L1 ANSWER 4 OF 6 FSTA COPYRIGHT 2004 IFIS on STN

AN 2000(01):P0141 FSTA

TI Conjugated linoleic acid content of milk from cows fed different diets.

AU Dhiman, T. R.; Anand, G. R.; Satter, L. D.; Pariza, M. W.

CS Animal, Dairy & Vet. Sci., Utah State Univ., Logan, UT 84322-4815, USA

SO Journal of Dairy Science, (1999), 82 (10) 2146-2156, 33 ref.

ISSN: 0022-0302

DT Journal

LA English

AB Conjugated linoleic acid content of milk was determined for cows fed different diets. In Experiment 1, cows were fed either normal or **high oil corn** and corn silage. Conjugated linoleic acid was 3.8 and 3.9 mg/g milk fatty acids in normal and high oil treatments, respectively. In Experiment 2, cows consumed one-third, two-thirds, or their entire **feed** from a permanent pasture. Alfalfa hay and concentrates supplied the balance of **feed**. Conjugated lineoleic acid was 8.9, 14.3 and 22.1 mg/g milk fatty acids in the one-third, two-third and all pasture treatments, respectively. Cows grazing pasture and receiving no supplemental **feed** had 500% more conjugated lineoleic acid in milk fat than cows fed typical dairy diets (Experiment 1). In Experiment 3, cows were fed either a control diet containing 55% alfalfa silage and 45% grain, or similar diets supplemented with 3% fish meal, 250 g monensin/cow/day or fish meal and monensin together. Conjugated linoleic acid was 5.3, 8.6, 6.8 and 8.9 mg/g milk fatty acids in control, fish meal, monensin and fish meal plus monensin treatments, respectively. In Experiment 4, cows were fed either finely chopped alfalfa hay (Treatment 1) or coarsely chopped alfalfa hay (Treatment 2) in a 50% forage and 50% grain diet, or 66.6% grass hay and 33.4% grain (Treatment 3), or 98.2% grass hay (Treatment 4). Conjugated linoleic acid was 7.3, 8.3, 9.0 and 7.9 mg/g milk fatty acids in treatments 1-4, respectively.

CC P (Milk and Dairy Products)

CT FEEDS; LINOLEIC ACID; MILK; CONJUGATED LINOLEIC ACID

L1 ANSWER 5 OF 6 FSTA COPYRIGHT 2004 IFIS on STN

AN 1989(12):P0028 FSTA

TI Evaluation of **high oil corn** and corn silage for lactating cows.

AU Atwell, D. G.; Jaster, E. H.; Moore, K. J.; Fernando, R. L.

CS Dep. of Anim. Sci., Univ. of Illinois, Urbana, IL 61801, USA

SO Journal of Dairy Science, (1988), 71 (10) 2689-2698, 29 ref.

ISSN: 0022-0302

DT Journal

LA English

AB 40 multiparous Holstein-Friesian cows in early lactation were fed mixed diets containing control concentrate plus control maize silage, or high oil concentrate and/or high oil maize silage (with the appropriate control **feed**). Milk yield and composition were not significantly different among diets; milk fat % was 2.37-2.46 and milk protein % was 2.84-2.86. Levels of de novo synthesized milk fat fatty acids (C4:0-C16:0) were reduced, but those of preformed fatty acids of dietary origin were increased on all diets.

CC P (Milk and Dairy Products)

CT DAIRY PRODUCTS; FATTY ACIDS; FEEDS; MILK; COMPOSITION

L1 ANSWER 6 OF 6 FSTA COPYRIGHT 2004 IFIS on STN

AN 1972(11):S1563 FSTA

TI Effects of feeding high oil corns to growing-finishing swine.

AU Nordstrom, J. W.; Behrends, B. R.; Meade, R. J.; Thompson, E. H.  
 CS Univ. of Minnesota, St. Paul. 55101, USA  
 SO Journal of Animal Science, (1972), 35 (2) 357-361, 27 ref.  
 DT Journal  
 LA English  
 AB Increasing the amount of corn oil in diets for growing swine, either by adding 3 or 12% refined corn oil to corn-soybean meal diets or by utilizing corns containing 6.7-8.4% oil, did not significantly affect rate of gain but resulted in a highly significant ( $P < 0.01$ ) decrease in feed/gain when corn oil was added. A significant ( $P < 0.05$ ) reduction in feed/gain occurred when one of the 2 high oil corn diets was fed. No significant differences in % ham and loin of cold carcass weight, backfat thickness or longissimus muscle area were found due to the dietary treatments. The high oil diets did cause increased deposition of linoleic acid and noticeably softer carcasses, although the softening effect was moderate except for diets containing 12% added corn oil.  
 CC S (Meat, Poultry and Game)  
 CT CARCASSES; FATS ANIMAL; LINOLEIC ACID; MEAT; SWINE; THICKNESS; BACKFAT; CARCASS; FAT (ANIMAL); FEED; LONGISSIMUS # AREA; MUSCLE; MUSCLES; PIG; QUALITY; CARCASS ; FEED ; LINOLEIC ACID ; SWINE ; THICKNESS

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 COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
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FULL ESTIMATED COST

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FILE COVERS 1907 - 15 Sep 2004 VOL 141 ISS 12  
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=> s feed and high(w)oil(w)corn  
     202612 FEED  
     3418942 HIGH  
     684769 OIL  
     110724 CORN  
     57 HIGH(W)OIL(W)CORN  
 L2      27 FEED AND HIGH(W)OIL(W)CORN

=> d 12 cbib,ab 1-27

L2 ANSWER 1 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN  
 2003:819998 Document No. 140:93176 Apparent ileal digestibility of amino acids and the digestible and metabolizable energy content of high

-oil corn varieties and its effects on growth performance of pigs. Song, G. L.; Li, D. F.; Piao, X. S.; Chi, F.; Yang, W. J. (National Feed Technology Engineering Research Center, China Agricultural University, Beijing, Peop. Rep. China). Archives of Animal Nutrition, 57(4), 297-306 (English) 2003. CODEN: AANUET. ISSN: 0003-942X. Publisher: Taylor & Francis Ltd..

- AB Two expts. were conducted to compare the nutritional value of normal and **high-oil corn** for swine. The normal corn and the two varieties (high-oil corns A and B) of **high-oil corn** contained 4.41, 7.35 and 8.86% ether extract, on DM basis, resp. In experiment 1, six non-littermate crossbred barrows ( $37.8 \pm 1.3$  kg BW) were fitted with ileal T-cannulas and used in a double replicated Latin Square digestion trial. Three diets were formulated containing 96.6% of one of the three varieties of corn as the only protein source. Chromic oxide (0.4%) was added as a digestibility marker. Addnl. vitamins and minerals were added to meet requirements. The digestible energy concns. for normal corn and **high-oil corn** A and B were 16.53, 16.99 and 17.07 MJ/kg while the metabolizable energy values were 15.82, 16.32 and 16.36 MJ/kg, on DM basis, resp. The ileal amino acid digestibility of **high-oil corn** was generally higher than that of normal corn with significant differences being observed for the essential amino acids isoleucine and phenylalanine. In experiment 2, 96 swine ( $8.01 \pm 0.14$  kg BW) were used to evaluate 4 diets in a  $2 + 2$  factorial design conducted over a 35-day period. Corn variety (high-oil vs. normal corn) and nutrient d. (high content of protein and ME vs. low content of protein and ME) were set as the two main effects. During the first 14 days, swine fed **high-oil corn** diets consumed more **feed** and tended to get higher daily gain than swine fed normal corn. Over the entire 35-day experiment, increasing dietary nutrient d. increased daily gain and tended to increase **feed** conversion, while variety of corn had no significant effects on performance. Overall, the present results indicate that the energy concentration and ileal amino acid digestibility of **high-oil corn** varieties were equal or superior to those in normal corn and therefore they should be able to be effectively utilized in diets fed to swine.

L2 ANSWER 2 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN  
2003:818065 Document No. 139:306673 Process for manufacture of corn oil, corn meal and fermentation products from corn starch. Jakel, Neal Torrey; Ulrich, James F. (Renessen, LLC, USA). U.S. Pat. Appl. Publ. US 2003194788 A1 20031016, 24 pp., Cont.-in-part of U.S. Ser. No. 927,836. (English). CODEN: USXXCO. APPLICATION: US 2003-369171 20030218. PRIORITY: US 1999-249280 19990211; US 2000-637843 20000810; US 2001-927836 20010810.

- AB Corn oil and corn meal obtained from **high oil corn** are included in useful products. A method of producing fermentation-based products comprising combining corn meal remaining after the extraction of oil from whole **high oil corn** with water and an enzyme. This combination is incubated and then mixed with a micro-organism capable of fermenting a carbon source to produce fermentation-based products such as ethanol.

L2 ANSWER 3 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN  
2003:763880 Document No. 140:41323 Feeding value of **high-oil corn** for Taiwan Country chicken. Lin, Min-Jung; Chiou, Peter Wen-Shyg; Chang, Shen-Chang; Croom, Jim; Fan, Yang-Kwang (Department of Animal Science, National Chung Hsing University, Taichung, 402, Taiwan). Asian-Australasian Journal of Animal Sciences, 16(9), 1348-1354 (English) 2003. CODEN: AJASEL. ISSN: 1011-2367. Publisher: Asian-Australasian Journal of Animal Sciences.

- AB The feeding value of **high-oil corn** fed to Taiwan Country (TC) chicken was examined by measuring apparent metabolizable energy (AME), growth performance, sexual maturity, carcass characteristics, and plasma pigmentation. In a completely randomized

design, 870 sex-intermingled one-wk-old chicks were assigned to one of 30 floor pens, 29 birds per pen, and each pen randomly assigned to one of five dietary treatments. The experiment was ended when birds were 16 wk of age. The five dietary treatments varied in main fat sources, which were corn oil (CO), **high-oil corn** (HOC), lard (LRD), whole soybean (WSB) and yellow corn (YC), resp. All the diets were formulated isonitrogenously, isocalorically, and of equal lysine and methionine contents except YC, in which equal amts. of YC replaced HOC. The results indicated that **feed conversion** in HOC was 8% higher ( $p < 0.05$ ) than YC whereas the calculated AME of HOC was only 3.5% to 4.0% higher than that of YC. No significant differences were observed in body weight, body weight gain, **feed consumption**, **feed conversion** ratio and ME efficiency for body weight gain among CO, HOC, LRD, and WSB. No significant differences existed in both skin and muscle pigmentation of breast among the five dietary treatments. No significance differences existed in plasma carotenoid content measured at various ages among the five dietary treatments except that birds fed with HOC had less ( $p < 0.05$ ) plasma carotenoids at 16 wk-old. The results indicate that if the price of **high-oil corn** is no more than 1.05 times that of yellow corn, the dietary cost per kg of body weight gain for TC chickens fed diets containing **high-oil corn** will be less, although their body weight may be lighter compared to chickens fed diets formulated with other fat sources.

L2 ANSWER 4 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

2003:530874 Document No. 139:229885 Milk production and composition from cows fed high oil or conventional corn at two forage concentrations. Whitlock, L. A.; Schingoethe, D. J.; Hippen, A. R.; Kalscheur, K. F.; AbuGhazaleh, A. A. (Dairy Science Department, South Dakota State University, Brookings, 57007-0647, USA). Journal of Dairy Science, 86(7), 2428-2437 (English) 2003. CODEN: JDSCAE. ISSN: 0022-0302. Publisher: American Dairy Science Association.

AB Lactating multiparous Holstein dairy cows ( $n=12$ ,  $63 \pm 24$  days in milk) were used in 4x4 Latin square trial with 28-day periods to evaluate conventional and **high-oil corn** grain when fed at 2 forage/concentrate ratios. Dietary treatments consisted of conventional or **high-oil corn** used in diets with corn silage/alfalfa hay/concentrate **feed** ratios of 25:25:50 or 30:30:40. The dry matter intake (28.1, 28.7, 26.9, and 26.2 kg/day for normal diets with conventional and **high oil corn** and high-forage diets with conventional and **high oil corn**, resp.) and resp. milk yields (36.8, 37.2, 35.5, and 35.2, kg/day) were similar for conventional and **high-oil corn** diets and were lower with the high-forage diet regardless of corn source. Milk fat concns. were greater when the diets contained more forage (4.03 vs. 3.88% for 60 and 50% forages, resp.), but milk protein concns. were not affected by the forage contents. Corn source did not affect milk fat or milk protein concns. Long-chain fatty acid concns., unsatd. fatty acid concns., and total C18:1 fatty acid concns. were greater with the **high-oil corn**, but were not affected by forage contents in the diets. The concns. of trans-vaccenic acid (0.58, 0.81, 0.62, and 0.69 g/100 g fatty acids) and cis-9, trans-11-conjugated linoleic acid (0.28, 0.39, 0.32, and 0.33 g/100 g fatty acids) were greater with the **high-oil corn** diet than with conventional corn when fed with 50% forage, but were similar for both corn sources at 60% forage. The total n-3 fatty acid levels were not affected by corn source or forage contents. The high-forage diets decreased milk production and increased milk fat concns. Thus, feeding **high-oil corn** increased the concns. of long-chain, unsatd., trans-vaccenic, and conjugated linoleic fatty acids in milk, but the production of trans-vaccenic and conjugated linoleic acids were attenuated by high-forage diets.

L2 ANSWER 5 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

2003:486947 Document No. 139:196761 Comparisons of amino acid availability

by different methods and metabolizable energy determination of a Chinese variety of **high oil corn**. Song, G. L.; Li, D. F.; Piao, X. S.; Chi, F.; Wang, J. T. (National Feed Technology Engineering Research Center, China Agricultural University, Beijing, Peop. Rep. China). Poultry Science, 82(6), 1017-1023 (English) 2003. CODEN: POSCAL. ISSN: 0032-5791. Publisher: Poultry Science Association, Inc..

AB TME, true amino acid availability (TAAA), AME, and apparent amino acid availability (AAAA) were determined in Chinese **high oil corn** (CHOC) and conventional corn (CC). The CC and CHOC contained 4.58 and 8.44% ether extract (DM basis), resp. A precision-fed rooster assay was used in which each corn sample was tube-fed (50 g) to 16 roosters and excreta were collected for 48 h. A N-free diet and fasting methods were used to evaluate endogenous amino acid (AA) losses. Endogenous losses of 10 AA were different ( $P < 0.05$ ) with the N-free and fasting methods; in most cases the mean value for the N-free treatment was greater ( $P < 0.05$ ) than for the fasting treatment. The TME value for CHOC was greater than for CC (4,193 vs. 3,961 cal/g DM;  $P < 0.05$ ). The true availability of aspartic acid, threonine, isoleucine, and leucine of CC and CHOC was higher ( $P < 0.05$ ) for the N-free method than for the fasting method. When compared within the N-free or within the fasting method, the true availabilities of lysine, methionine, and proline were higher ( $P < 0.05$ ) in CHOC than in CC, but the true availability of phenylalanine was lower ( $P < 0.05$ ) in CHOC than in CC. The AAAA values, although lower, followed similar patterns as the TAAA values. The results of this study indicated that availability of AA in CHOC is equal or superior to that in CC and that the available energy for poultry is higher in CHOC than in CC.

L2 ANSWER 6 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

2003:419313 Document No. 139:164036 The use of **high-oil corn** in young broiler chicken diets. Kim, I. B.; Allee, G. L. (Department of Animal Sciences, University of Missouri-Columbia, Columbia, MO, 65211, USA). Asian-Australasian Journal of Animal Sciences, 16(6), 880-883 (English) 2003. CODEN: AJASEL. ISSN: 1011-2367. Publisher: Asian-Australasian Journal of Animal Sciences.

AB The growth performance of young broiler chickens fed 3 varieties of **high-oil corn** (HOC 1, 2, and 3) was compared with feeding 8 varieties of normal corn (NC). HOC varieties contained .apprx.80% more oil than NC (average crude fat 6.71 vs. 3.72%) and .apprx.29% more protein (average CP 9.54 vs. 7.38%). Each exptl. diet was formulated with the same amount (55.205%) of each corn hybrid. Experiment 1 had 6 diets (HOC1 and five NC varieties; 360 chickens) and Experiment 2 had 5 diets (HOC2, HOC3, and three NC varieties; 250 chickens). In Experiment 1 evaluating feed efficiency ( $F/G = \text{feed/gain ratio}$ ), the diet with HOC1 led to better performance than diets with other NC varieties, except NC5. There was no significant difference in average daily feed intakes among the diets. The diet with HOC1 gave 4.3% improvement in  $F/G$  that came from 6% higher gross energy (GE) value of HOC1. In Experiment 2, the diets containing HOC hybrids gave 4.4% higher  $F/G$  than NC diets, which came from 5% increase in GE value. The HOC varieties had nutrient contents superior to NC for poultry since HOC contained higher levels of feed energy, protein, lysine, and methionine, thus improving growth and  $F/G$  ratio.

L2 ANSWER 7 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

2002:965165 Document No. 138:40992 Production of corn oil and corn meal with high nutrient content from whole **high-oil corn** kernels. Ulrich, James F.; Jakel, Neal T.; Lohrmann, Troy T.; Kotowski, Douglas C.; Adu-Peasah, Patrick; Ingvalson, Joel; Aufdembrink, Brent; Tupy, Michael J.; Fox, Eugene J.; Beaver, Michael J.; Amore, Francis; Anderson, Stephan C.; Anderson, Beth R. (Renessen LLC, USA; Cargill, Inc.). U.S. Pat. Appl. Publ. US 2002193617 A1 20021219, 22 pp., Cont.-in-part of U.S. Ser. No. 637,843. (English). CODEN: USXXCO. APPLICATION: US 2001-927836 20010810. PRIORITY: US 1999-249280 19990211; US 2000-637843 20000810.

AB The present invention relates to production of corn oil and corn meal from

**high-oil corn** (containing  $\leq 6\%$  oil). The obtained corn oil comprises levels of nutrients not found in com. available corn oils, since in the proposed method most or all of the corn grain, rather than just the germ, is exposed to the extraction process. The corn oil is extracted from the **high-oil corn** to give nutrient-containing corn meal. The whole corn grain processing generally includes the steps of flaking corn grain having a total oil content of  $\leq 6$  weight % and extracting a corn oil from the flaked corn grain. The corn oil is useful for making nutritionally enhanced edible oil or cooking oil, lubricants, biodiesel, fuel, cosmetics and oil-based or oil-containing chemical products. The extracted corn meal is useful for making enhanced

animal

**feed** rations, snack food, blended food products, cosmetics, and fermentation broth additive.

L2 ANSWER 8 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

2002:160120 Document No. 136:199631 Production of milk or meat rich in conjugated linoleate. Yabuchi, Yuki; Tani, Masahide; Kobayashi, Kenji; Miyaura, Kazuto (National Federation of Agricultural Co-Operative Assoc., Japan). Jpn. Kokai Tokkyo Koho JP 2002065174 A2 20020305, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-260264 20000830.

AB Milk and meat containing fats with high conjugated linoleic acid content are produced by addition of germ of **high-oil corn** (HOC) to feeds. A **feed** containing 4.0% HOC germ was fed to cow to produce milk containing 25.1 mg conjugated linoleic acid/g-fat, vs. 19.7 mg/g-fat, for control.

L2 ANSWER 9 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

2002:142834 Document No. 136:185751 Products comprising corn oil and corn meal obtained from **high oil corn**. Ulrich, James Francis; Jakel, Neal Torrey; Lohrmann, Troy Thomas; McWilliams, Paul J.; Tupy, Michael J.; Beaver, Michael J.; Amore, Francis (Renessen LLC, USA). PCT Int. Appl. WO 2002014459 A2 20020221, 63 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2001-US25055 20010810. PRIORITY: US 2000-637843 20000810.

AB The corn oil is extracted from the **high oil corn** to form the corn meal. The corn oil generally comprises levels of nutrients (e.g. lutein, vitamins,  $\beta$ -carotene, etc.) not found in com. available corn oils, since most or all of the corn grain, rather than just the germ, is exposed to the extraction process. The corn grain generally includes the steps of, optionally cracking and conditioning, flaking corn grain having a total oil content of  $\geq 6\%$  and extracting a corn oil from the flaked corn grain. The corn oil is useful for making nutritionally enhanced edible oil or cooking oil, lubricants, biodiesel fuel, cosmetics and oil-based or oil-containing chemical products. The extracted corn meal is useful

for making enhanced animal **feed** rations, snack food, blended food products, cosmetics, and fermentation broth additive.

L2 ANSWER 10 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

2002:135895 Products comprising corn oil and corn meal obtained from **high oil corn**. Ulrich, James Francis; Jakel, Neal Torrey; Dyer, Daniel Jeffrey; Lohrmann, Troy Thomas (Renessen Llc, USA). PCT Int. Appl. WO 2002013624 A1 20020221 DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,



TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG.

(English). CODEN: PIXXD2. APPLICATION: WO 2000-US22207 20000811.

- AB Corn oil and corn meal obtained from **high oil corn** are included in useful products. The corn oil is extracted from the **high oil corn** to form the corn meal. The corn oil generally comprises levels of nutrients not found in commercially available corn oils, since most or all of the corn grain, rather than just the germ, is exposed to the extraction process. The corn grain generally includes the steps of flaking corn grain having a total oil content of at least about 8 and extracting a corn oil from the flaked corn grain. The corn oil is useful for making nutritionally enhanced edible oil or cooking oil, lubricants, biodiesel, fuel, cosmetics and oil-based or oil-containing chemical products. The extracted corn meal is useful for making enhanced animal **feed** rations, snack food, blended food products, cosmetics, and fermentation broth additive.

L2 ANSWER 11 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

2002:132831 Document No. 137:62444 The use of near infrared spectroscopy to predict digestible amino acid contents of animal and vegetable protein sources for poultry nutrition. Bodin, J. C.; Geraert, P. A. (Aventis Animal Nutrition, Commentry, F-03600, Fr.). Near Infrared Spectroscopy, Proceedings of the International Conference, 9th, Verona, Italy, June 13-18, 1999, Meeting Date 1999, 777-782. Editor(s): Davies, Anthony M. C.; Giangiacomo, Roberto. NIR Publications: Chichester, UK. ISBN: 0-9528666-1-7 (English) 2000. CODEN: 69CGZM.

- AB It is feasible to use near IR (NIR) calibrations to predict total and digestible amino acid content in several important feedstuff used in animal **feed** formulation. The R2 and SEP for total and digestible amino acids were encouraging as an efficient screening tool to optimize **feed**-mill management and **feed** formulation. These results were confirmed for total amino acids through the validations operated on two sets of samples coming directly from the field. This type of application illustrates the potentials of NIR as a rapid quality control tool well. Due to a continuously changing feedstuff market and because NIR is non-destructive and non-time-consuming, it is completely adaptable to the time frame of **feed**-mill management. NIR would thus allow **feed** producers to apply more relevant quality control which should allow the production of better quality diets. With the appearance of new categories of raw materials (for example, **high oil corn**, soybean meals with high levels of lysine or methionine) it will be necessary to be able to measure the nutritional quality of crops rapidly on their arrival in the **feed**-mill for storage and hence to re-adjust the **feed**-formulation.

L2 ANSWER 12 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

2001:923139 Document No. 136:199547 Nutritive and economic values of **high oil corn** in layer diet. Lee, B. D.; Kim, D. J.; Lee, S. J. (Department of Animal Science, Chungnam National University, Daejeon, 305-764, S. Korea). Poultry Science, 80(11), 1527-1534 (English) 2001. CODEN: POSCAL. ISSN: 0032-5791. Publisher: Poultry Science Association, Inc..

- AB Two layer feeding trials were conducted to demonstrate the nutritive and economic values of recently developed **high oil corn** (HOC) in Korea. A corn-soybean meal-based com. layer diet was chosen as the control diet. The yellow dent corn in the control diet was replaced with HOC to give an isocaloric diet, or replaced with HOC on a 1:1 basis to give a high energy diet. In Trial 1, 510 23-wk-old ISA Brown layers were allotted to three dietary treatments with five replicates per treatment. In Trial 2, 600 38-wk-old Hy-Line Brown layers were allotted to three dietary treatments, again with five replicates per treatment. Both trials were conducted for 15 wk. To measure the ME values of typical corn and HOC, two metabolism trials were performed with layers and adult roosters. The HOC used in this trial contained approx.

94% higher crude fat (6.60% as-fed basis) compared with typical corns. The gross energy, AMEn, and TME values of HOC, are 5.7 to 7.7% higher than those of typical corns, indicating that the energy use of each corn were similar. Oil from the HOC contains 6.5 to 8.3% more oleic acid and 6 to 7% less linoleic acid than oil from typical corns. HOC feeding, on an isocaloric basis or on 1:1 replacement with typical corn, did not exert any effect on various laying performances, including the phys. quality of egg. This result reflects the quality of the com. diet chosen as the control diet, which was already fairly good, such that the performance was already maximal. The polyunsatd. fatty acid content in yolk from hens fed HOC was higher than that from hens fed typical corns, reflecting higher linoleic acid content in the HOC. HOC feeding decreased the saturated fatty acid content in the yolk, due primarily to decreased palmitic acid. If used alone replacing typical corn completely in a layer diet, the acceptance price of HOC was estimated to be 154 won/kg when the price of typical corn was 131 won/kg (118:100). When both corns were allowed to be used, the acceptance price of HOC increased to 184 won/kg (140:100), indicating that a lot cheaper layer diet can be formulated when both HOC and typical corn are used in laying hen diet formulation.

L2 ANSWER 13 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

2001:227458 Document No. 134:310357 Effect of dietary lipid source on conjugated linoleic acid concentrations in milk fat. Chouinard, P. Y.; Corneau, L.; Butler, W. R.; Chilliard, Y.; Drackley, J. K.; Bauman, D. E. (Department of Animal Science, Cornell University, Ithaca, NY, 14853, USA). Journal of Dairy Science, 84(3), 680-690 (English) 2001. CODEN: JDSCAE. ISSN: 0022-0302. Publisher: American Dairy Science Association.

AB Conjugated linoleic acids (CLA) found in ruminant milk fat are a byproduct of incomplete biohydrogenation of lipids by ruminal bacteria. The authors examined the effect of different dietary fat supplements and processing methods on CLA. In trial 1, dietary supplements of Ca salts of fatty acids from canola oil, soybean oil, and linseed oil increased CLA content of milk fat by three- to five-fold over the control diet. Trials 2 and 3 examined the effect of processing methods for heat treatment of full fat soybeans. In trial 2, extrusion, micronizing, and roasting resulted in two- to three-fold greater concns. of CLA in milk fat than the control diet (raw ground soybeans). In trial 3, different temps. of extrusion (120, 130, and 140°C) increased the CLA content of milk fat to a similar extent; CLA averaged 19.9 mg/g of fatty acids for the extrusion treatments compared with 4.2 mg/g of fatty acids for the control diet. Fish oil (200 and 400 mL/d) was examined in trial 4 and both levels resulted in CLA concns. in milk fat that were about three-fold greater than the control diet. In trial 5, grain and silage from a **high oil corn** hybrid increased the CLA content of milk fat; however, responses were modest with the CLA concentration (mg/g of fatty acids) averaging 4.6 and 2.8 for diets with high oil hybrid and normal hybrid, resp. Similarly, dietary supplements of animal fat byproducts (tallow plus yellow grease; trial 6) resulted in modest increases in the CLA content of milk fat. Overall, several dietary manipulations involving lipid sources and processing methods were identified that allow for a marked increase in the conjugated linoleic acid content of milk fat.

L2 ANSWER 14 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

2000:759631 Document No. 134:114943 An animal nutritionist's perspective. Cromwell, Gary L. (University of Kentucky, Lexington, KY, USA). Agronomy, 40(Designing Crops for Added Value), 57-82 (English) 2000. CODEN: AGRYAV. ISSN: 0065-4663. Publisher: American Society of Agronomy.

AB A review with 57 refs. The topics include the nutritional value of genetically modified cereal grains and oil seeds, ruminant and nonruminant dietary requirements vs. plant feed supply quality, increasing protein content and quality and energy content in cereal grains, decreasing phytate content in cereal grains and oil seed meals, removal of antinutrient compds. (glucosinolates and erucic acid in rapeseed, trypsin inhibitors and oligosaccharides in soybean, gossypol in cotton seed, tannins in grain sorghum), genetic engineering technol. available to

improve crop nutritional value, examples of **high-oil corn** and low-phytate corn produced by this technol., and relative comparison of value-added cultivars vs. using dietary supplements.

L2 ANSWER 15 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

2000:667988 Effect of **high-oil corn** on growth

performance, diet digestibility, and energy content of finishing diets fed to beef cattle. Andrae, J. G.; Hunt, C. W.; Duckett, S. K.; Kennington, L. R.; Feng, P.; Owens, F. N.; Soderlund, S. (University of Idaho, Moscow, 83844, Russia). Journal of Animal Science (Savoy, Illinois), 78(9), 2257-2262 (English) 2000. CODEN: JANSAG. ISSN: 0021-8812. Publisher: American Society of Animal Science.

AB Sixty crossbred beef steers (initial BW = 412 kg) were used in a 83-d finishing study to determine the effect of feeding dry rolled **high-oil corn** on performance and total-tract digestibility of finishing diets. Steers were allotted by weight to the following dietary treatments: 1) control corn (C; 82% normal corn, 12% triticale silage), 2) **high-oil corn** (HO; 82% **high-oil corn**, 12% silage), and 3) **high-oil corn** formulated to be isocaloric to C (ISO; 74% **high-oil corn**, 20% silage). Total lipid content was 4.9% (DM basis) for normal corn and 7.0% for **high-oil corn**. Steers were individually fed using electronic gates. Quantity of feed offered and refused was recorded daily. Fecal samples were collected on d 63 to 66 of the trial to determine digestibility. Chromic oxide was fed as an indigestible marker for 7 d before fecal collection began. Planned contrasts of HO vs C and ISO vs C were used to assess treatment differences. Dry matter intake was greater for steers fed C vs HO ( $P < 0.01$ ) or C vs ISO ( $P < 0.01$ ), but daily gain and feed efficiency were not affected ( $P > 0.05$ ) by treatments. Digestibility of DM, OM, starch, and GE was greater ( $P < 0.05$ ) for the HO diet than the C diet, but lipid digestibility did not differ among treatments ( $P > 0.05$ ). The combined effect of greater GE content and digestibility resulted in greater ( $P < 0.01$ ) DE content for the HO than for the C diet. Calculated DE of the corn was 8.3% greater (3.74 Mcal/kg;  $P < 0.01$ ) for the HO diet and 6.5% greater (3.67 Mcal/kg;  $P < 0.01$ ) for the ISO diet than the corn in the C diet (3.25 Mcal/kg). Dry matter and GE digestibility did not differ ( $P > 0.05$ ) between the C and ISO diets. Steers consuming ISO had greater ( $P < 0.05$ ) starch digestibility than steers fed the C diet. Although HO had higher DE, DE intake was similar ( $P > 0.05$ ) for HO and C due to lower DMI for HO. These results indicate that available energy is greater from **high-oil corn** than from typical corn, but depressed voluntary feed intake prevented performance improvements and resulted in equal energy intakes between **high-oil corn** and typical corn diets.

L2 ANSWER 16 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

2000:584260 Document No. 133:266031 Nutritional value of a genetically improved high-lysine, **high-oil corn** for

young pigs. O'Quinn, P. R.; Nelssen, J. L.; Goodband, R. D.; Knabe, D. A.; Woodworth, J. C.; Tokach, M. D.; Lohrmann, T. T. (Department of Animal Sciences and Industry, Kansas State University, Manhattan, KS, 66506, USA). Journal of Animal Science (Savoy, Illinois), 78(8), 2144-2149 (English) 2000. CODEN: JANSAG. ISSN: 0021-8812. Publisher: American Society of Animal Science.

AB Two expts. were conducted to compare the nutritional adequacy of the genetically improved high-lysine/**high-oil corn** (HLHOC; 0.408% lysine, 6.21% fat on as-fed basis) and **high-oil corn** (HOC; 0.289% lysine, 5.97% fat on as-fed basis) in growing pigs. Experiment 1 used 4 non-littermate barrows with initial body weight of 20.0 kg fitted with ileal T-cannulas. The 0.75% total lysine diets contained 8.5% casein and an equal amount of lysine (0.25%) from the tested corn varieties. The apparent ileal digestibilities of amino acids, gross energy, dry matter, and crude protein were similar between the diets. The

apparent ileal lysine digestibilities were 65 and 71% for the HOC and HLHOC, resp., assuming that the lysine in casein is 100% digestible. Experiment 2 used 100 barrows reared in a segregated early-weaning environment (initial body weight 8.3 kg and age 27 days) to evaluate 5 corn-soybean meal diets in a 2 + 2 factorial arrangement with main effects being corn type and dietary lysine level (0.80 or 1.15% digestible lysine). The fifth diet had the 0.80% digestible lysine HOC diet supplemented with 0.23% addnl. L-lysine HCl (0.975% digestible lysine) to verify that lysine was the limiting amino acid in the low-lysine diets. Increasing the digestible lysine from 0.80 to 1.15% increased the average daily gains (ADG) and gain/feed ratio (G/F) regardless of the corn variety. The resp. ADG and G/F values were 0.347 kg and 0.641 and 0.443 kg and 0.790 for the 0.80 and 1.15% digestible lysine diets. Within the lysine levels the corn type did not affect ADG, average daily feed intake, or G/F. Thus, the lysine in HLHOC is as available as the lysine in HOC. HLHOC can be used successfully in swine diets.

L2 ANSWER 17 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

1999:751126 Document No. 132:77811 Recovery of fiber in the corn dry-grind ethanol process: a feedstock for valuable coproducts. Singh, Vijay; Moreau, Robert A.; Doner, Landis W.; Eckhoff, Steven R.; Hicks, Kevin B. (Department of Agricultural Engineering, University of Illinois, Urbana, IL, 61801, USA). Cereal Chemistry, 76(6), 868-872 (English) 1999. CODEN: CECHAF. ISSN: 0009-0352. Publisher: American Association of Cereal Chemists.

AB A new process was developed to recover corn fiber from the mash before fermentation in dry-grind ethanol production In this process, corn is soaked in

water (no chems.) for a short period of time and then de-germed using conventional de-germination mills. In the remaining slurry, corn coarse fiber is floated by increasing the d. of the slurry and then separated using d. differences. The fiber recovered is called quick fiber to distinguish it from the conventional wet-milled fiber. This study evaluated the percent of quick fiber recovery for a normal yellow dent and **high oil corn** hybrid. The quick fiber was analyzed for levels of corn fiber oil, levels of ferulate phytosterol esters (FPE) and other valuable phytosterol components in the oil and compared with conventional wet-milled corn coarse and fine fiber samples. Fiber samples were also analyzed and compared for yields of potentially valuable corn fiber gum (CFG, hemicellulose B). Comparisons were made between the quick fiber samples obtained with and without chems. in the soak water. An average quick fiber yield of 6-7% was recovered from the two hybrids and represented 46-60% of the total fiber (fine and coarse) that could be recovered by wet-milling these hybrids. Adding steep chems. (SO<sub>2</sub> and lactic acid) to the soak water increased the quick fiber yields, percent of FPE recoveries, and total percent of phytosterol components to levels either comparable to (for the dent corn hybrid) or higher than (for the **high oil corn** hybrid) those recovered from the total conventional wet-milled fiber samples. CFG yields in the quick fiber samples were comparable to those from the wet-milled fiber samples. CFG yields in the quick fiber samples were not significantly affected by the addition of chems. (SO<sub>2</sub> and lactic acid) to the soak water.

L2 ANSWER 18 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

1999:672198 Document No. 131:350665 Conjugated linoleic acid content of milk from cows fed different diets. Dhiman, T. R.; Anand, G. R.; Satter, L. D.; Pariza, M. W. (Dairy Forage Research Center, USDA-ARS, University of Wisconsin, Madison, WI, 53706, USA). Journal of Dairy Science, 82(10), 2146-2156 (English) 1999. CODEN: JDSCAE. ISSN: 0022-0302. Publisher: American Dairy Science Association.

AB In Experiment 1, dairy cows were fed normal or **high-oil corn** and corn silage. The conjugated linoleic acid (CLA; 9-cis,11-trans) content was 3.8 and 3.9 mg/g milk fatty acids in normal and high-oil treatments, resp. In Experiment 2, the cows consumed 1/3, 2/3, or the entire ration from permanent pasture. Alfalfa hay and concs. supplied

the balance of feed for the 1/3 and 2/3 pasture treatments. The CLA content was 8.9, 14.3, and 22.1 mg/g milk fatty acids in the 1/3, 2/3, and all-pasture treatments, resp. Cows grazing pasture and fed no supplemental feed had 500% more CLA in milk fat than cows fed typical dairy diets in Experiment 1. In Experiment 3, the cows were fed a control

diet containing 55% alfalfa silage and 45% grain, or similar diets supplemented with 3% fish meal or 250 g monensin per cow and day, or fish meal plus monensin. The CLA content was 5.3, 8.6, 6.8, and 8.9 mg/g milk fatty acids in the control, fish meal, monensin, and fish meal plus monensin treatments, resp. In Experiment 4, the cows were fed finely chopped alfalfa hay (Treatment 1) or coarsely chopped alfalfa hay (Treatment 2) in a 50:50 forage/grain diet, or 66.6% grass hay and 33.4% grain (Treatment 3), or 98.2% grass hay (Treatment 4). The CLA content was 7.3, 8.3, 9.0, and 7.9 mg/g milk fatty acids in Treatments 1 through 4, resp.

L2 ANSWER 19 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

1999:591302 Nutritional benefits of specialty grain hybrids in beef feedlot diets. Stock, R. A. (Cargill Corn Milling, Blair, NE, 68008-2649, USA). Journal of Animal Science (Savoy, Illinois), 77(Suppl. 2), 208-212 (English) 1999. CODEN: JANSAG. ISSN: 0021-8812. Publisher: American Society of Animal Science.

AB The study of grain hybrids with faster or more extensive rates of ruminal starch fermentation has been a key research area. Because grain sorghum starch is generally regarded as less accessible to enzymic degradation than starch in other grains, it has received the greatest research emphasis. However, all grains have been evaluated to some extent. Grain sorghum hybrids appear to be more variable in digestibility, in vitro and in vivo, and in rate of starch fermentation than are corn hybrids. The greater variation may be

partially because grain sorghum hybrids are developed and evaluated under more stressful environmental conditions (high temperature and limited water conditions) than are corn hybrids. In vitro and in vivo studies indicate that differences in grain hybrids exist, but these differences may not totally explain differences in cattle performance. The response to feeding high-lysine corn to cattle has been variable. Although high-lysine corn supplies more lysine in the diet, lysine flow to the abomasum was not increased. Hybrids selected for increased lysine content have been shown to have faster in vitro rates of starch digestion, suggesting that improvements in animal performance may be related to the indirect selection for improved energy utilization. In one study in which high-oil corn was evaluated, feed conversion was not improved compared with a control corn diet. At the present time addnl. studies in which other genetic modifications of grain hybrids are evaluated are in progress, but the results have not been published.

L2 ANSWER 20 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

1999:591301 Document No. 131:285768 Nutritional benefits of specialty corn grain hybrids in dairy diets. Dado, Richard G. (Consolidated Nutrition, Portland, MI, 48875, USA). Journal of Animal Science (Savoy, Illinois), 77(Suppl. 2), 197-207 (English) 1999. CODEN: JANSAG. ISSN: 0021-8812. Publisher: American Society of Animal Science.

AB A review with 44 refs. Corn grain is a primary energy supplement in dairy diets and can contribute up to 30, 60, and 98% of the diet's protein, net energy, and starch, resp. Specialty corn hybrids are one result of efforts to select corn based on nutrient content. Many of these hybrids, which include high lysine, high oil, waxy, white, and sugary, among others, have been the subject of renewed interest because of improvements in agronomic performance, commitments by marketers to preserve the identity of specialty grain, and improvements in our understanding of digestion and nutrient requirements. Nutrients targeted in corn for dairy cattle include protein content, amino acid quality (especially lysine and methionine that escape ruminal fermentation), starch (including form, texture, and digestibility), lipid content, fatty acid composition, and mineral composition

and availability. Concns. of protein and oil are highest in the germ, and both are neg. correlated with starch concentration. Efforts to improve lysine content are hampered by its neg. correlation with total protein. Lactation studies to date have shown variable production responses to specialty corns; their value may be limited to replacing more expensive ingredients in dairy diets. Increasing the protein content of corn would have the most economic value in diets for cows producing less than 9500 kg per lactation. High lysine corn is currently of limited value; increases in ruminally undegraded lysine would increase its value in diets for cows producing more than 9500 kg per lactation. At current fat ingredient prices, **high oil corn** has limited economic value except in diets for very high production

L2 ANSWER 21 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

1998:587612 Document No. 129:315125 More fat versus better fat: improved edible oils and animal feeds. Broglie, Richard (DuPont Agric. Products, Wilmington, DE, 19880-0402, USA). Schriftenreihe des Bundesministers fuer Ernaehrung, Landwirtschaft und Forsten, Reihe A: Angewandte Wissenschaft, Sonderh. (5. Symposium Nachwachsende Rohstoffe: Perspektiven fuer die Chemie, 1997), 61-65 (English) 1997. CODEN: SBEWDO. ISSN: 0723-7847. Publisher: Koellen Druck+Verlag GmbH.

AB A review with no refs. on the production of **high-oil corn** grain with enhanced nutritional value for the animal feed market and high oleic acid soybean oils for edible and industrial applications.

L2 ANSWER 22 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

1997:203167 Effect of dietary energy source and immunological challenge on growth performance and immunological variables in growing pigs. Spurlock, M. E.; Frank, G. R.; Willis, G. M.; Kuske, J. L.; Cornelius, S. G. (Purina Mills, Inc., St. Louis, MO, 63144, USA). Journal of Animal Science, 75(3), 720-726 (English) 1997. CODEN: JANSAG. ISSN: 0021-8812. Publisher: American Society of Animal Science.

AB Forty-eight growing pigs (23 kg BW) were assigned to four treatments (n = 12) arranged as a 2 + 2 factorial. Dietary energy source (conventional [CON] vs **high-oil corn** [HOC]), with or without an immunol. challenge (IC) regimen constituted main effects. The IC regimen consisted of injection of endotoxin (E. coli lipopolysaccharide [LPS]) and vaccination for porcine respiratory and reproductive syndrome (PRRS). Growth performance data were collected over a 5-wk period and are presented as perchallenge (d 1 to 14; d 1 was the 1st d of the study), challenge (d 15 to 21), and postchallenge (d 22 to 36) periods, and overall. Overall, the pigs fed HOC consumed less feed (P < .11) and gained more efficiently (P < .03). During the immunol. challenge period, ADG was depressed 21% and feed intake 15% (P < .01). The IC resulted in lower (P < .01) serum  $\alpha$ -1-acid glycoprotein (AGP) concns. on d 22, and the magnitude of the reduction was greater in the pigs fed the CON diet (energy source + immune challenge, P < .10). Serum AGP concns. remained lower (P < .08) in challenged pigs on d 36. Immunoreactive prostaglandin concns. were higher (55%, P < .08) in the pigs fed HOC immediately following the IC period (d 22). The data reported herein indicate that the performance of pigs fed HOC is satisfactory, and that feeding HOC does not compromise growth performance during or after an immunol. challenge.

L2 ANSWER 23 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

1997:145602 Document No. 126:224609 Energy concentration of **high-oil corn** varieties for pigs. Adeola, Olayiwola; Bajjalieh, N. L. (Dep. Animal Sciences, Purdue Univ., West Lafayette, IN, 47907-1151, USA). Journal of Animal Science, 75(2), 430-436 (English) 1997. CODEN: JANSAG. ISSN: 0021-8812. Publisher: American Society of Animal Science.

AB Growth performance and utilization of nutrients and energy in three **high-oil corn** varieties (5.4 to 9.7% ether extract) and regular corn (4.2% ether extract) were compared in three expts.

using growing pigs. Twenty-four 25-kg crossbred barrows were used in Exp. 1 to evaluate nutrient and energy digestibility in the three **high-oil corn** varieties and regular corn. Four diets were formulated to contain 97% of one of four varieties of corn (Control, TC1, TC2, and X122 varieties) and 3% minerals and vitamins. Digestibilities of nitrogen and ether extract were similar ( $P > .05$ ) for regular corn and all three varieties of **high-oil corn**. The digestible energy concns. (kcal/g; as-fed basis) for control, TC1, TC2, and X122 corn varieties were 3.29, 3.57, 3.4, and 3.41, resp., with control lower ( $P < .05$ ) than TC2 or X122 and TC1 higher ( $P < .05$ ) than TC2 or X122. Metabolizable energy concns. averaged 98.4% of digestible energy concns. In Exp. 2, four diets formulated to contain 79% of one of the four corn varieties, 18.25% 48% CP soybean meal, 2.45% vitamins and minerals, and .3% lysine·HCl were fed to 24 crossbred barrows (six pigs per diet) in a nutrient and energy balance study similar to the Exp. 1. Results were similar to those obtained in Exp. 1. The same four diets that were used in Exp. 2 were fed to 40 (10/diet) 20-kg crossbred pigs (20 barrows and 20 gilts) in a 28-d growth performance study (Exp. 3). Gain: **feed** ratios were .39, .43, .42, and .42 and growth rates (kg/d) were .68, .74, .70, and .72, for diets containing control, TC1, TC2, and X122 corn varieties, resp. These translate to 8 to 10% improvement in **feed** efficiency and a numerical improvement in weight gain (3 to 9%) when **high-oil corn** was fed as compared with control corn. The results of nitrogen, ether extract, and energy balance and feeding expts. with growing pigs indicate efficient utilization of nutrients in diets containing **high-oil corn**.

L2 ANSWER 24 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

1995:533851 Document No. 122:289642 The nutritional value of **high-oil corn** for broiler chicks. Bartov, I.; Bar-Zur, A. (Departments Poultry Science and Field Crops (Newe Ya'ar), Volcani Center, Bet Dagan, 50250, Israel). Poultry Science, 74(3), 517-22 (English) 1995. CODEN: POSCAL. ISSN: 0032-5791.

AB A variety of corn (Natan) with high fat and protein contents (6.7 and 9.8%, resp.) was developed at Newe Ya'ar, Israel. The nutritive value of this corn for broiler chicks from 7 to 28 d of age was evaluated in two expts. In the first experiment, Natan and a local conventional corn variety (LCC-2.9% fat and 7.2% protein) were incorporated in a relatively low-protein diet designated for the determination of AMEn by the substitution method. The AMEn content of Natan was found to be 3,658 kcal/kg, whereas that of LCC was 3,437 kcal/kg. There were no differences in **feed** intake or weight gain between chicks fed the two corn varieties, but **feed** efficiency of those fed the diet containing Natan was improved. In the second experiment, the effects on the performance of chicks of diets adequate in protein and containing either imported conventional corn (ICC), or Natan, or ICC-enriched with corn oil and soybean meal (to equalize its fat and protein content to that of the diet containing Natan), were compared. There were no differences in **feed** intake or weight gain among chicks fed the three diets and in **feed** efficiency among chicks fed the diet containing Natan and those fed the other two diets, whereas, the enrichment of the ICC-containing diet significantly improved **feed** efficiency. It was concluded, therefore, that in spite of the high nutritional value of the **high-oil corn**, its effect on improving the performance of chicks, when replacing a conventional corn in a well-balanced diet, was not pronounced.

L2 ANSWER 25 OF 27 CAPLUS COPYRIGHT 2004 ACS on STN

1993:232847 Document No. 118:232847 Diets containing **high oil corn** and tallow for dairy cows during early lactation. Elliott, J. P.; Drackley, J. K.; Schauff, D. J.; Jaster, E. H. (Dep. Anim. Sci., Univ. Illinois, Urbana, IL, 61801, USA). Journal of Dairy Science, 76(3), 775-89 (English) 1993. CODEN: JDSCAE. ISSN: 0022-0302.

AB Four multiparous Holstein cows averaging 49 DIM and fitted with ruminal cannulas were utilized in a 4 + 4 Latin square design with 21-day

periods to determine the effects of diets containing **high oil corn** grain and tallow. Cows were fed diets of alfalfa haylage and concentrate (37:63, dry matter basis) for ad libitum intake. Treatments were (1) control, with no added fat, (2) **high oil corn** grain replacing regular corn grain, (2) **high oil corn** grain and 2.5% tallow, and (4) **high oil corn** grain and 5% tallow. Intake of DM, milk production, and yields of milk fat, milk protein, milk SNF, and 4% FCM were not affected by dietary fat, although DMI tended to be lower when cows were fed 5% tallow. Percentages of protein and SNF in milk were lower when cows were fed diets containing fat. Percentage of milk fat was lower when cows were fed diets containing tallow. Supplemental fat decreased total VFA concns. in ruminal fluid. Cows fed **high oil corn** had a greater molar proportion of acetate and a large acetate to propionate ratio in ruminal fluid than cows fed **high oil corn** and tallow. Digestibility of total fatty acids decreased when tallow was added to diets containing **high oil corn**. No differences were observed among treatments for total tract apparent digestibilities of DM and fiber or utilization of energy and N. Dietary **high oil corn** and 5% tallow tended to decrease DMI and to alter ruminal fermentation characteristics.

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1985:61201 Document No. 102:61201 Comparative utilization of in-seed fats and the respective extracted fats by the young pig. Adams, K. L.; Jensen, A. H. (Univ. Illinois, Urbana, IL, 61801, USA). Journal of Animal Science (Savoy, IL, United States), 59(6), 1557-66 (English) 1984. CODEN: JANSAG. ISSN: 0021-8812.

AB Twelve weanling pigs (5.8 kg) were used to determine the relative utilization of in-seed (I) fats (fats in **high-oil corn**, roasted soybeans, and sunflower seeds) and the resp. extracted (E) fats (corn oil, soybean oil, and sunflower seed oil). The average fat digestibility (corrected for endogenous fecal fat) for the I fats (74.9%) was less than for the E fats (90.2%). There were no significant differences in corrected fat digestibilities among the I fats, but there was a significant interaction between source and form of fat. The dry matter, energy, and N in the I diets were also less digestible than in the E diets, with a source-by-form of fat interaction. Four hours after meals were offered, blood lipid values were lower in pigs fed I diets than in those fed E diets. The samples of ingesta from the gastrointestinal tract indicated that dietary particle separation from the roasted soybean and sunflower seed diets occurred in the stomach. There was an increase in the percentage of C18:0 in the proximal small intestine, an increase in C18:2, and a decrease of C16:0 and C18:0 in the distal part of the intestine, and an increase in C18:0 and C18:1 and a decrease in C16:0 and C18:2 in the large intestine. Although the I fats were less digestible than the E fats, **high-oil corn**, roasted soybeans, and sunflower seeds were relatively efficient sources of supplemental fat and were easily incorporated into the diets for weanling pigs.

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1978:71411 Document No. 88:71411 Breeding special industrial and nutritional types. Alexander, D. E.; Creech, Roy G. (Univ. Illinois, Urbana, IL, USA). Agronomy, 18(Corn Corn Improv.), 363-90 (English) 1977. CODEN: AGRYAV. ISSN: 0065-4663.

AB A review and discussion with 110 refs. of the use of **high-oil corn** as a feed and industrial crop, oil and protein quality, carbohydrates, and breeding.

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COST IN U.S. DOLLARS

SINCE FILE

TOTAL

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